

## CLAIMS:

1. An adjusting device for adjusting imaging parameters (I, V, L, f, Q<sub>0</sub>) of an X-ray apparatus (1), comprising:
  - a user interface (6), by means of which, with the aid of a preliminary image, a user may specify an image region of interest (ROI) and a visibility criterion (CNR<sub>ref</sub>) desired for this image region;
  - a data processing device (5) arranged to carry out the following steps:
    - a) calculation of adjusted imaging parameters (I, V, L, f, Q<sub>0</sub>) of the X-ray apparatus (1), by use of which the predetermined visibility criterion (CNR<sub>ref</sub>) is achieved for the given image region (ROI);
    - 10 b) control of the X-ray apparatus (1) on the basis of the calculated, adjusted imaging parameters (I, V, L, f, Q<sub>0</sub>).
2. A device as claimed in claim 1, characterized in that the data processing device (5) is arranged to determine, in a preliminary image, the current value of the visibility criterion (CNR<sub>m</sub>) for a predetermined image region (ROI).
- 15 3. A device as claimed in claim 1, characterized in that the imaging parameters influence the dose (Q<sub>0</sub>) per exposure, the intensity and/or the quality of the X-ray radiation generated with the X-ray apparatus (1).
- 20 4. A device as claimed in claim 3, characterized in that the imaging parameters include the tube current (I), the tube voltage (V), the pulse length (L) and/or the setting values (f) of filter elements.
- 25 5. A device as claimed in claim 1, characterized in that the visibility criterion is the contrast-to-noise ratio of the image region of interest (ROI).

6. A device as claimed in claim 1, characterized in that, in a preliminary image, on the basis of at least one pixel (A, B) predefined via the user interface (6), the data processing device (5) is arranged to segment an image region of interest (ROI).

5 7. A device as claimed in claim 1, characterized in that the data processing device (5) is arranged to take account of the influence of image processing procedures, in particular noise filtration, when adjusted imaging parameters (I, V, L, f,  $Q_0$ ) are calculated.

8. A device as claimed in claim 1, characterized in that it includes a control  
10 module (7) for feedback control of imaging parameters (I, V, L) of the X-ray apparatus (1) during an X-ray image.

9. A device as claimed in claim 1, characterized in that it includes means for detecting changes in the imaging geometry and that the data processing device (5) is arranged  
15 to adjust the calculated imaging parameters (I, V, L, f,  $Q_0$ ) in the case of a change in the imaging geometry such that the predetermined visibility criterion ( $CNR_{ref}$ ) is still achieved.

10. A method for adjusting imaging parameters (I, V, L, f,  $Q_0$ ) of an X-ray apparatus (1), comprising the following steps:

- 20 a) generation of a preliminary image with starting values for the imaging parameters;
- b) interactive stipulation of an image region of interest (ROI) and of a visibility criterion ( $CNR_{ref}$ ) desired for this image region;
- c) calculation of adjusted imaging parameters (I, V, L, f,  $Q_0$ ) for the X-ray  
25 apparatus (1), during the use of which the predetermined visibility criterion ( $CNR_{ref}$ ) is achieved for the predetermined image region (ROI);
- d) control of the X-ray apparatus (1) based on the calculated, adjusted imaging parameters (I, V, L, f,  $Q_0$ ).

30 11. X-ray apparatus having an adjusting device according to one of claims 1 to 9.